UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
BUREAU OF AGRICULTURAL AND INDUSTRIAL CHEMISTRY
PROJECT OFFICE

LIST OF UNCLASSIFIED PROJECTS

December 31, 1953
(Supersedes list dated November 13, 1951.)

Contents

1. Approved U-System Projects

u-1 - CEREAL AND FORAGE CROP UTILIZATION INVESTIGATIONS.

u-1-1 - Corn, Wheat, and Other Cereal Crop Utilization Investigations - Northern Region.

u-1-1-1 (Rev.) N SD
Production of starch sponge by small-scale laboratory methods in established and new forms as required for clinical testing and evaluation as a hemorrhage-controlling agent by Army, Navy, and Veterans Administration research staffs.
Approved 10/2/52 for 2 years.

u-1-1-4 (Rev.) N MFE
Road and chassis dynamometer tests for correlating octane requirement and anti-detonant consumption with the performance of engines with compression ratios ranging from 5.3-to-1 to 12-to-1, using low-octane gasoline and alcohol-water injection.
Approved 10/1/52 for 2 years.

u-1-1-16 (Rev.) N F
Investigations on the conjoint use of starch-degrading and protein-synthesizing yeasts for the production of feeds from grain and grain wastes characterized by enhanced protein and vitamin content to meet essential military and civilian needs.
Approved 12/5/52 for 2 years.

u-1-1-17 (Rev.) N SD Revision of part of u-1-1-17
Studies on the relation of thickness and composition of endosperm cell walls to milling quality of representative industrially important Pacific Northwest wheat varieties for the development of correlations and methods to permit early selection of new varieties having both good agronomic and good milling quality for the maintenance of full and efficient flour production.
Approved 12/22/53 for 1 year.

u-1-1-19 (Rev.) N SD
Laboratory processing studies to determine the effects of artificial drying on the suitability of corn for wet milling to permit choice of best drying practices necessary for full production of starch (and byproducts) for defense needs.
Approved 12/4/52 for 2 years.

u-1-1-20 (Rev.) N SD
Chemical survey of newly introduced or developed grain types to find a high-amylose starch for use in making transparent films for packaging foods for the Armed Forces.
Approved 3/27/53 for 3 years.

u-1-1-28(C) N SD
Studies on the cause of staling in bakery products.
Covers contract A-1s-30909. Approved 4/21/50 for 4 years.

u-1-1-29(C) N SD
Studies on the chemical composition of the water-soluble carbohydrate constituents of wheat flour and bread to determine causes of staling in bakery products, especially bread.
Covers contract A-1s-33422. Approved 6/4/51 for 3 years.

u-1-1-30 (Rev.) N F
Search for new antibiotics to be evaluated for use in the preserving of food to meet military needs.
Approved 12/4/52 for 2 years.

u-1-1-31(C) N ED
Plant-scale operations employing the fungal amylase process for the conversion of damaged grains into alcohol.
Covers contract A-1s-33037. Approved 4/3/51; extended 8/20/53 to 5/23/54.

u-1-1-32 (Rev.) N F
Search for and laboratory investigation of actinomycetes which produce both vitamin B_{12} and new antibiotics for use in animal feeds to obtain greater meat production for military and civilian use.
Approved 12/3/52 for 2 years.

u-1-1-33(C) N F
Evaluation of the vitamin B_{12}-antibiotic concentrates produced by the Bureau as supplemental animal feeds to improve their growth-promoting factors.
Covers contract A-1s-33034. Approved 4/6/51 for 3 years.

u-1-1-34(C) N MFE
Prevention of valve-sticking and burning by use of alcohol-water injection in conjunction with low octane gasoline in farm tractors in field use for food production.
Covers contract A-1s-33448. Approved 9/27/51; extended 8/20/53 to 9/1/55.

u-1-1-35(C) N MFE
Study of surface conditions and other factors affecting preignition of alcohol fuels when used for power boost in military aircraft or high-compression automotive engines.
Covers contract A-1s-33681. Approved 2/11/52 for 2 years.

u-1-1-36 N MFE
Study and thermodynamic analysis of the cooling action of alcohol-water injection on fuel distribution and gum formation in gasoline engines, and its effect on fuel combustion efficiency for better economy.
Approved 10/3/52 for 2 years.

u-1-1-37 N SD
Blood plasma extenders: Dextran - isolation, purification, and chemical characterization of dextrans obtained from a survey of dextran-producing bacteria.
Approved 12/5/52 for 2 years.

u-1-1-39 N SD
Blood plasma extenders: Dextran - studies on the chemical structure of dextrans by identification of the products of selective chemical and enzymic degradation
Approved 12/5/52 for 2 years.

u-1-1-40 N SD
Blood plasma extenders: Dextran - preparation, fractionation, and chemical characterization of clinical dextrans to make solutions for physiological testing and evaluation.
Approved 12/5/52 for 2 years.

u-1-1-42 N SD
Blood plasma extenders: Dextran and starch - studies on the chemical structure of dextrans and dextrins by methylation analysis.
Approved 12/5/52 for 2 years.

u-1-1-44 N SD
Blood plasma extenders: Dextran and starch - studies on the chemical structure of dextrans and dextrins by periodate oxidation and identification of reaction products.
Approved 12/5/52 for 2 years.

u-1-1-45 N AP
Blood plasma extenders: Dextran and starch - measurement of physical properties of dextran and starches important to their use as blood plasma extenders.
Approved 12/16/52 for 2 years.

u-1-1-47 N ED
Development, on a pilot-plant scale, of a fermentation process for the production of a vitamin B_{12}-antibiotic concentrate for use in supplementing animal feeds to improve their growth-promoting factors.
Approved 8/31/53 for 2 years.

u-1-1-48 N ED
Blood plasma extenders: Dextran - development, on a pilot-plant scale, of a fermentation process for the production of dextrans.
Approved 12/5/52 for 2 years.

u-1-1-49 N F Revision of parts of u-1-1-6 and u-1-1-10
Blood plasma extenders: Dextran - production and use of enzymes (dextransucrase) in place of whole cultures to make dextrans.
Approved 12/16/52 for 2 years.

u-1-1-50 N F Revision of parts of u-1-1-6 and u-1-1-10
Blood plasma extenders: Dextran - selection and identification of microorganisms producing new types of dextran.
Approved 12/16/52 for 2 years.

u-1-1-52 N SD
Blood plasma extenders: Starch - preparation, fractionation, and chemical characterization of clinical dextrins for testing and evaluation as red blood cell precipitants and plasma extenders.
Approved 12/16/52 for 2 years.

u-1-1-54 DC ARD
Identification of minor components of dextran that cause harmful reactions when it is used as a blood plasma substitute, at the request of the Army Medical Service.
Approved 9/16/53 for 2 years.

u-1-1-55 N F Revision of parts of u-1-1-6 and u-1-1-10
Blood plasma extenders: Dextran - production and utilization of enzymes (dextranase) in modifying native dextran.
Approved 12/16/52 for 2 years.

u-1-1-56 N MFE
A study of the effect of alcohol-water injection on engine deposits which increase octane requirement and engine maintenance in military and essential civilian, farm tractor, and truck operation.
Approved 9/29/52 for 2 years.

u-1-1-57 N SD
Studies on starches of newly developed cereal grain varieties (and, for comparative purposes, of starches from selected non-cereal plants) to find starches of unusual properties to meet special national defense needs in industry, foods and medicine.
Approved 10/7/52 for 2 years.

u-1-1-58 N F
Operation and improvement of a culture collection of molds, yeasts, bacteria, and actinomycetes to provide a reservoir of authentic microorganisms for use in making antibiotics, vitamins and chemicals, assays, and identifications of importance to national defense.
Approved 12/5/52 for indefinite period.

u-1-1-59 N MFE
Investigations of the corrosion of iron, zinc, aluminum, and copper by alcohol-water mixtures during gasoline engine intake, combustion, and exhaust processes to prevent breakdown in the operation of civilian and military cars, trucks, and tractors, and studies of the effect of corrosion inhibitors.
Approved 10/2/52 for 2 years.

u-1-1-61 N ED
Development on a pilot-plant scale of a process for the wet-milling of grain sorghum grits for the production of a purer grade of starch for use in preparing food products for the armed forces.
Approved 12/2/52; extended 7/6/53 to 1/16/54.

u-1-1-63 N AP
Basic studies on the relation of relative humidity to the moisture content of wheat to determine the reliability of moisture content as a measure of storability.
Approved 12/12/52 for 2 years.

u-1-1-64 N SD Revision of part of u-1-1-17
Studies on the preparation and the chemical and physical properties of corn hemicellulose (from bran and fiber) for its evaluation as a new thickening and sizing agent and as a replacement for imported vegetable gums and mucilages.
Approved 10/5/53 for 2 years.

u-1-1-65(C) N AP
Comparison of the molecular shapes of dextrans by flow birefringence measurements in order to relate molecular shape to chemical structure and to aid the selection of the dextran most suitable for a blood plasma extender.
Covers contract A-1s-33722. Approved 12/3/52 for 3 years.

u-1-1-66(C) N AP
Compilation of the most reliable data available on the composition of cereal grains, including corn, wheat, sorghum grain, oats, barley, rye, buckwheat, and millet to promote the efficient utilization of these grains as animal feeds.
Covers contract A-1s-33826 (jointly with u-1-3-7(C)). Approved 5/14/53 for 2 years.

u-1-1-67(C) N AP
Experimental baking studies on the prevention of bread staling by incorporation of a modified starch and a starch modifier in the dough.
Covers contract A-1s-33819. Approved 5/18/53 for 2½ years.

u-1-1-68 N AP
Determination of the relationship of relative humidity to the moisture content of corn to provide information basic to the safe storage of grain.
Approved 8/4/53 for 2 years.

u-1-1-69 N SD
Development of improved methods for the laboratory evaluation of chemicals for the preservation of quality in stored corn.
Approved 8/4/53 for 2 years.

u-1-1-70 N F
Analysis of oats grown from crossing selected strains to produce grain having higher vitamin and protein content, thereby improving the nutritional value.
Approved 10/2/53 for 2 years.

u-1-1-71 N OP
Investigation of the composition of wheat flour lipids in relation to bread baking quality.
Approved 9/9/53 for 2 years.

u-1-1-72(C) N F
Genetic recombination as a possible means for improving product yields in selected fermentations.
Covers contract A-1s-33832. Approved 9/4/53 for 3 years.

u-1-1-73(C) N SD
Investigations on the chemical structure of selected important plant gums and mucilages, to serve as a foundation for the correlation of chemical structure with physical properties and the production of new gum-like materials from cereal starches and hemicelluloses.
Covers contract A-1s-33834. Approved 9/18/53 for 3½ years.

u-1-2 - Wheat and Rice Utilization Investigations - Western Region.

u-1-2-1 (Rev.) W FC Revision of part of u-1-2-1
Development of tests applicable to small samples of wheat, to accelerate the work of wheat breeders in developing new varieties of wheat resistant to new races of rust and smut: Tests for predicting baking characteristics, based on separation and comparison of water-soluble proteins (albumins) from wheat varieties of widely different baking quality.
Approved 7/10/53 for 2 years.

u-1-2-3 (Rev.) W FC
Development of tests applicable to small samples of wheat, to accelerate the work of wheat breeders in developing varieties of wheat resistant to new races of rust and smut: Tests for predicting milling behavior, based on correlation of milling characteristics with composition and physical properties of wheats having widely different milling behavior.
Approved 9/30/52 for 2 years.

u-1-2-4 (Rev.) W FC
Development of accelerated storage tests and means for measuring oxidative deterioration in parboiled and "instant" rice products under development for militar and civilian use.
Approved 9/29/52 for 2 years.

u-1-2-5 (Rev.) W FC Revision of part of u-1-2-5
Development of improved parboiled rice products (grain precooked in the hull) for military and civilian use: Determination of optimum processing conditions to yield high quality products of satisfactory storage stability.
Approved 12/24/52 for 2 years.

u-1-2-7 W FC Revision of part of u-1-2-1
Investigations of the lipid-protein complexes in wheat flour, doughs, and baked products, particularly the influence of various steps in the baking process and of other ingredients on the extent and stability of such complex formation, in order to provide information useful in preventing deterioration of flour and baking mixes in storage, especially under severe military field conditions.
Approved 12/14/52 for 2 years.

u-1-2-8 W FC Revision of part of u-1-2-5
Development of an "instant" rice (prepared for serving by adding boiling water) for military and civilian use: Determination of optimum processing conditions to yield a high quality product of satisfactory storage stability.
Approved 6/3/53 for 2 years.

u-1-2-9 W FC
Investigation of the progressive changes which take place in Western rough rice under diverse conditions of preprocessing storage as a means of establishing essential conditions for maintaining satisfactory milling and processing characteristics of the grain.
Approved 12/11/53 for 2 years.

u-1-3 - Alfalfa and Other Forage Crops Utilization Investigations.

u-1-3-2 (Rev.) W FC
Isolation and characterization of the chick-growth inhibiting factor(s) in alfalfa meals to aid in devising treatments for improving the nutritive properties of this major poultry feedstuff.
Approved 10/3/52 for 2 years.

u-1-3-3 (Rev.) W FC
Determination of the kinds and amounts of the yellow pigment xanthophyll in selected varieties of alfalfa, and its stability during dehydration and storage of the plant material to provide information for preparing alfalfa products rich in this pigment which, as an ingredient of poultry feed, imparts desirable color to finished poultry products.
Approved 12/4/52 for 2 years.

u-1-3-4 (Rev.) W FC Revision of part of u-1-3-4
Stabilizing carotene (pro-vitamin A) in dehydrated alfalfa in order to assure an economical supply of this essential vitamin for poultry and livestock use during seasons of the year when green forage is in short supply: Selection of suitable antioxidants for stabilizing carotene in the dehydrated alfalfa, by use of a rapid evaluation test.
Approved 12/16/52 for 2 years.

u-1-3-5 (C) W FC
Decreasing the cost of dehydrating alfalfa and preserving the carotene (provitamin A) and other nutrients by preprocessing the green plant material by heat blanching or treatment with chemicals and partial natural drying, thereby producing a more economic feedstuff for poultry and livestock feeding.
Covers contract A-1s-33420. Approved 9/26/50; extended 10/30/53 to 6/30/55.

u-1-3-6 W FC Revision of part of u-1-3-4
Stabilizing carotene (pro-vitamin A) in dehydrated alfalfa in order to assure an economical supply of this essential vitamin for poultry and livestock use during seasons of the year when green forage is in short supply: Development of effective means of treating dehydrated alfalfa with antioxidants by application in vegetable oils or other carriers.
Approved 6/4/53 for 2 years.

u-1-3-7(C) W FC
Compilation of the most reliable data available on the composition of forages (dry, green, silage) used either on the farm or processed for marketing.
Covers contract A-1s-33826 (jointly with u-1-1-66(C)). Approved 5/14/53 for 2 years.

u-1-3-8 W FC
Stepwise separation by chemical classes of the juice components of the legumes, alfalfa and ladino clover, to make possible the examination of the residues for classes or combination of classes which may be causative, contributive, or suppressive to ruminant bloat.
Approved 9/22/53 for 2 years.

u-1-4 - Rice Utilization Investigations - Southern Region.

u-1-4-3 (Rev.) S O
Exploratory investigation of factors responsible for high refining losses of rice oil to provide basic information for development of processes for improving yield and quality of refined oil and thus broaden utilization of rice products.
Approved 8/18/53 for 1 year.

u-1-4-4(C) S O
Pilot-plant investigations of the effect of drying, storage, and processing factors on the quality of rice.
Covers contract A-1s-32667. Approved 12/9/49 for 3 years. Discontinuance is in preparation.

u-1-4-6 S O
Conservation of supplies of rice for armed forces and civilian populations through investigations of effect of chemical treatment, heat, and moisture content upon milling properties and susceptibility of rice to storage damage.
Approved 7/10/53 for 2 years.

u-2 - COTTON AND OTHER FIBER UTILIZATION INVESTIGATIONS.

u-2-1 - Cotton Utilization Investigations.

u-2-1-1 (Rev.) S CCP
Weatherproofing and rotproofing of cotton for military and commercial use by treatment with selected additive finishes.
Approved 10/2/52 for 2 years.

u-2-1-3 (Rev.) S CCP Revision of part of u-2-1-3
Development of improved methods for the continuous acetylation of cotton yarns and fabrics to produce textiles of improved heat, rot, and acid resistance.
Approved 8/4/53 for 2 years.

u-2-1-4 (Rev.) S CCP
Conversion of aminized cotton to flameproofed textiles with emphasis on military requirements, by treatment with chemicals which react with the amino group.
Approved 6/12/53 for 2 years.

u-2-1-5 (Rev.) S CF
Microscopical investigation of change in the primary wall of cotton fiber caused by chemical modification to provide cotton textiles better adapted for military and civilian use.
Approved 10/2/52 for 2 years.

u-2-1-6 (Rev.) S CF
Investigation of changes in cotton fiber properties caused by acetylation and decrystallization to provide cotton textiles better adapted to military and civilian use.
Approved 12/16/52 for 2 years.

u-2-1-7 (Rev.) S CF
Flameproofing cotton with halogenated alkyl phosphates with emphasis on military requirements.
Approved 4/27/53 for 2 years.

u-2-1-8 (Rev.) S CF
Investigation of practical x-ray methods for measuring the crystallinity of cotton cellulose to aid development of cotton textiles with improved elongation and other desirable properties for military and civilian use.
Approved 12/16/52 for 2 years.

u-2-1-11 (Rev.) S CMP
Development of improved cotton products for military and civilian uses through optimum utilization of fiber strength and structure in the processing of fiber into yarns and fabrics.
Approved 12/8/52 for 2 years.

u-2-1-12 (Rev.) S CMP
Development of improved cotton products for military and civilian uses through optimum utilization of fiber fineness and length in the processing of fibers into yarns and fabrics.
Approved 12/16/52 for 2 years.

u-2-1-13 (Rev.) S CMP
Exploratory investigations to develop machinery and apparatus as an aid to improving quality and lowering cost of yarns and fabrics for military and civilian uses.
Approved 10/2/52 for 2 years.

u-2-1-14 (Rev.) S CMP
Development of cotton products of improved quality for military and civilian uses through better proportionment of medium-staple fiber drafting on long-draft roving frames.
Approved 12/4/52; extended 11/19/53 to 6/4/54.

u-2-1-15 (Rev.) S CCP
Exploratory investigations of chemical bonding of flame-resistant resins to cotton to give wash-resistant flameproofed fabrics suitable for military and civilian clothing.
Approved 6/12/53 for 1 year.

u-2-1-16 (Rev.) S CF,ED Revision of part of u-2-1-16
Development of cotton textiles with increased elongation and other desirable properties for military and civilian uses by treatments which reduce the crystallinity of cotton cellulose.
Approved 12/24/52 for 2 years.

u-2-1-20(C) S OD
Determination of the factors which influence the draping properties of cotton fabrics.
Covers contract A-1s-31908. Approved 3/31/49; extended 4/7/52 to 3/31/53. Discontinuance is in preparation.

u-2-1-21 (Rev. 2) S CMP
Development of new equipment for cleaning mechanically harvested cottons at textile mills to improve quality and lower cost of cotton products for military and civilian uses.
Approved 8/4/53 for 2 years.

u-2-1-25(C) S CCP
Improvement of the luster of cotton textiles.
Covers contract A-1s-32651. Approved 8/30/49 for 3 years. Discontinuance is in preparation.

u-2-1-26 (Rev.) S CCP
Exploration of etherification reactions of cotton with halogen and sulfate compounds as a means of improving the properties of cotton for civilian and military use.
Approved 5/18/53 for 2 years.

u-2-1-27(C) (Rev.) S CMP
Application of electrostatic forces in cleaning and processing cotton.
Approved 11/23/51 for 2½ years. Covers contract A-1s-33432.

u-2-1-28(C) S CMP
Measurement of the nepping potential of lint cotton.
Approved 4/3/51; extended 8/20/53 to 4/3/54. Covers contract A-1s-33438.

u-2-1-29(C) S CCP
Improvement of dry cleaning methods for cotton textiles.
Covers contract A-1s-33437. Approved 3/30/51 for 3 years.

u-2-1-30 (Rev.) S CF
Exploration of the reactions of cotton cellulose with metallic compounds containing titanium or other flame-retarding elements as a means of flameproofing and rotproofing cotton textiles for military and civilian use.
Approved 4/27/53 for 2 years.

u-2-1-33(C) S CF
Improving the Pressley strength test for the purpose of providing a better basis for selecting different cottons for military and civilian uses.
Covers contract A-1s-33462. Approved 2/11/52 for 2 years.

u-2-1-34(C) S CCP
Effects of differences in cottons upon acetylation to improve heat and rot resistance for civilian and military uses.
Covers contract A-1s-33460. Approved 1/15/52 for 3 years.

u-2-1-35 (Rev. 2) S CMP
Determination of optimum processing procedures for inter-species and other high strength cottons to speed commercial introduction and provide improved cotton products for military and civilian uses.
Approved 8/4/53 for 2 years.

u-2-1-36 (Rev.) S CMP
Effect of count, weave, and yarn number upon the physical properties and serviceability of cotton fabrics as a basis for designing more suitable fabrics for military and civilian uses.
Approved 12/4/52 for 2 years.

u-2-1-37(C) S OD
Evaluation of new techniques for measuring the properties of single cotton fibers.
Covers contract A-1s-33467. Approved 4/17/52 for 3 years.

u-2-1-38(C) S CMP
Increasing the frictional properties of cotton fibers by additive chemical treatments as a step in development of cotton products of increased strength.
Covers contract A-1s-33701. Approved 5/5/52 for 2 years.

u-2-1-39 S CMP Revision of part of u-2-1-3
Development of practical techniques and methods for mechanically processing acetylated cotton fibers into yarns and fabric for military and essential civilian uses.
Approved 7/24/53 for 2 years.

u-2-1-42 S AP,ED
Development of practical methods for controlling the extent of acetylation in the commercial production of partially acetylated cotton textiles for military and civilian uses.
Approved 8/24/53 for 2 years.

u-2-1-43 S AP,CCP Revision of part of u-2-1-3
Determination of acid and alkali resistance of acetylated cotton to evaluate potential utility in filtration and other military and civilian applications.
Approved 10/2/52 for 2 years.

u-2-1-44 S CF Revision of part of u-2-1-16
Development of cotton textiles with improved elastic recovery and other desirable properties for military and civilian uses by chemical cross-linkage with resinous compounds.
Approved 12/16/52 for 2 years.

u-2-1-45 S CF
Development of a practical process for methylating and ethylating cotton fiber to impart special properties to textiles for military use.
Approved 10/2/52 for 2 years.

u-2-1-46 S CF
Preparation of cotton textiles chemically modified with beta-propiolactone to produce, for military and essential civilian use, fabrics which are resilient, bulky, and heat- and soil-resistant.
Approved 12/3/52 for 2 years.

u-2-1-47(C) S CCP
Improvement of luster of cotton textiles by improving the basis for selecting the most suitable cottons and applying selected chemical finishes as a means of increasing the consumption of cotton in clothing and household uses.
Covers contract A-1s-33719. Approved 12/5/52 for 2½ years.

u-2-1-48(C) S CMP
Mercerization of cotton fibers without tension and processing into textiles having improved elongation and other properties for military and civilian uses.
Covers contract A-1s-33723. Approved 1/12/53 for 3 years.

u-2-1-49 S AP
Application of infrared absorption techniques to characterize chemically modified cottons developed to meet both military and civilian textile needs.
Approved 4/27/53 for 2 years.

u-2-1-50 S CCP Revision of part of u-2-1-3
Development of acetylated cotton fiber suitable for mechanical processing into textile products having improved heat, rot, and acid resistance.
Approved 8/20/53 for 1½ years.

u-2-1-51 S AP
Development of improved method of measuring pore-size distribution in cotton textiles and its application in evaluating textiles for military and civilian uses.
Approved 6/12/53 for 2 years.

u-2-1-52 S CCP Revision of part of u-2-1-3
Development of methods for preparing dyed acetylated cotton products, needed for both military and civilian purposes, that are resistant to weathering.
Approved 8/20/53 for 3 years.

u-2-1-53 S CCP Revision of part of u-2-1-3
Investigation of acid-catalyzed processes for acetylating cotton to develop improved and more economical methods for making heat-, acid-, and rot-resistant textile products.
Approved 8/18/53 for 2 years.

u-2-1-54 S CMP
Development of new auxiliary equipment and methods for cleaning mechanically harvested cottons, which have been thoroughly opened at textile mills, to improve quality and lower cost of cotton products.
Approved 8/4/53 for 2 years.

u-2-1-55 S CF,ED
Development of cotton products with new combinations of desirable properties such as elasticity and fatigue resistance by reducing the proportion and changing the nature of the crystalline cellulose in the fiber.
Approved 8/4/53 for 2 years.

u-2-1-56 S CF
A fundamental study of typical etherification reactions of cotton cellulose to aid development of chemically modified cotton textiles of improved utility.
Approved 9/4/53 for 2 years.

u-2-1-57 S CF
Exploratory preparation of new fibers from cotton by forming ether derivatives of the cellulose, particularly hydroxy-, cyano-, and carboxy-alkyl, derivatives to obtain new combinations of desirable properties in textile products.
Approved 8/4/53 for 2 years.

u-2-1-58(C) S CF
An evaluation of breaking elongation and tenacity of bundles of cotton fibers as measured with the Stelometer and their usefulness as a means of predicting processing behavior and valuable textile properties of cotton yarns.
Covers contract A-1s- . Approved 9/24/53 for 3 years.

u-2-1-59(C) S CMP
Improvement of the competitive position of cotton through the development of fabrics having enhanced draping properties.
Covers contract A-1s- . Approved 10/5/53 for 3 years.

u-2-2 - Wool and Mohair Utilization Investigations.

u-2-2-1 (Rev.) W AP Revision of part of u-2-2-1
Determination, by means of x-ray diffraction, of the change in structure of wool fibers when treated with beta-propiolactone, as a means of improving the felting properties of wool for military and civilian uses.
Approved 12/5/52 for 2 years.

u-2-2-2 (Rev.) W Pr
Investigations of the chemical and physical properties of domestic wool and mohair fibers, with a view to development of improved products and processing methods, thus conserving the national stock pile of this strategic material: Modification of wool and mohair with beta-propiolactone and related chemical compounds which react with active hydrogen in the fiber structure.
Approved 10/2/52 for 2 years.

u-2-2-3 (Rev.) W Pr Revision of part of u-2-2-3
Investigations of the chemical and physical properties of domestic wool and mohair fibers, with a view to development of improved products and processing methods, thus conserving the national stock pile of this strategic material: Correlation of the strength and elasticity with molecular and microscopic structure in natural and chemically modified wool and mohair fibers.
Approved 12/4/52 for 2 years.

u-2-2-5 (Rev.) W Pr
Study of the efficiency of naturally occurring suint salts in wool as detergents in the scouring of grease wool, in order to produce improved wool for military and civilian uses and produce an effluent from which valuable by-products may be recovered.
Approved 10/2/52 for 2 years.

u-2-2-6 W AP Revision of part of u-2-2-1
Determination of the microwave dielectric constants of wool and mohair fibers at several microwave frequencies and several different levels of water content, in order to identify molecular groupings within the fiber responsible for changes with water content of fiber properties essential to the quality of wool products for military and civilian uses.
Approved 12/5/52 for 2 years.

u-2-2-7 W Pr Revision of part of u-2-2-3
Investigations of the chemical and physical properties of domestic wool and mohair fibers, with a view to development of improved products and processing methods, thus conserving the national stock pile of this strategic material: Determination of molecular size and shape and of the nature of the intramolecular forces responsible for the tenacity and resilience of wool and mohair fibers.
Approved 10/2/52 for 2 years.

u-2-2-8(C) W Pr
Investigation of the resting of American-grown wools in processing by the French and Bradford Worsted systems in order to develop information on the benefits of controlled ageing to a point where the procedure can be applied to mill practice.
Covers contract A-1s-33801. Approved 1/29/53 for 2 years.

u-3 - FRUIT AND VEGETABLE UTILIZATION INVESTIGATIONS.

u-3-1 - Citrus, Apples, and Other Fruit Utilization Investigations - Western Region.

u-3-1-6 (Rev.) W ED
Engineering development of previously established methods for the utilization of pear cannery wastes in the production of molasses and pulp feed supplements.
Approved 4/30/53 for 2 years.

u-3-1-8 (Rev.) W FP
Prevention of losses in yield and quality from enzymatic browning in dehydration, concentration, and freezing of fruits: Identification of enzymes (chemical activators) which act upon the tannins in peaches to cause discoloration.
Approved 4/1/53 for 2 years.

u-3-1-11 (Rev.) W FP
Prevention of losses in yield and quality from enzymatic browning in dehydration, concentration, and freezing of fruits: Effect of composition of sirup and volume of air space in container on appearance and storage stability of frozen peaches.
Approved 3/31/53 for 2 years.

u-3-1-14 (Rev.) W FP
Development of procedures permitting use of fruit concentrates in commercial products: Use of apple juice concentrate as flavoring agent in sherbet and ice cream.
Approved 4/30/53 for 2 years.

u-3-1-16(C) W FP
Fundamental investigation of factors that govern yield and quality of dried prunes with the view of developing improved manufacturing procedures.
Covers contract A-ls-33008. Approved 8/31/50; extended 10/30/53 to 8/31/54.

u-3-1-17(C) W FP
Development of a practical process for making purees from Hawaiian papayas and guavas with the view of using them as blending agents for increasing the vitamin content and the taste appeal of mainland fruit products.
Covers contract A-ls-33425. Approved 8/31/50 for 4 years.

u-3-1-19(C) W FP
Fundamental study of chemical reactions involved in the discoloration of strawberry preserves with the view of developing means of inhibiting these reactions and thus increasing the shelf life of the product under the range of temperatures encountered in domestic and military use.
Covers contract A-ls-33424. Approved 12/18/50 for 4 years.

u-3-1-20 (Rev.) W FP
Development of procedures for preparing stable low-moisture powders from orange juice for military and civilian use in areas where refrigeration is not available.
Approved 5/19/53 for 2 years.

u-3-1-21 (Rev.) W Pas Revision of part of u-3-1-21
Prevention of off-flavor development in processed citrus juices for military and civilian use: Identification of the volatile constituents in canned grapefruit juice and their role in causing "processed" and "storage" flavors.
Approved 9/9/53 for 2 years.

u-3-1-23 (Rev.) W Pas
Prevention of off-flavor and color development in processed citrus juices and concentrates for civilian and military use: Identification of nitrogenous constituents which are present in lemon and orange juices and the determination of their role in color and flavor changes.
Approved 12/3/53 for 2 years.

u-3-1-24 (Rev.) W Pas
Development of new, flavor-fortified, frozen orange and grapefruit superconcentrates by addition of peel oil or volatile flavoring constituents, to conserve military storage and shipping space.
Approved 6/3/53 for 2 years.

u-3-1-25 (Rev.) W FP Revision of part of u-3-1-25
Determination of safe temperatures for warehousing and transportation of frozen fruits, under normal and emergency conditions: Strawberries.
Approved 8/7/53 for 3 years.

u-3-1-27 (Rev.) W FP
Prevention of losses in yield and quality from enzymatic browning in dehydration, concentration, and freezing of fruits: Identification of tannins which when acted upon by enzymes cause discoloration in peaches.
Approved 3/27/53 for 2 years.

u-3-1-28 (Rev.) W FP Revision of part of u-3-1-28
Reduction of waste and quality loss in commercial processing of raspberries: Mode of action of pectin-degrading substances (enzymes) responsible for adverse changes in texture and appearance during processing and storage of the processed fruit.
Approved 3/27/53 for 2 years.

u-3-1-29 (Rev.) W AP Revision of part of u-3-1-29
Development of a rapid method for the determination of the water content of fruits by means of nuclear magnetic resonance, to provide information needed for the improvement of the quality of fruit products.
Approved 12/5/52 for 2 years.

u-3-1-31 W Pas
Prevention of off-flavor and color development in processed citrus juices and concentrates for civilian and military use: Identification of flavonoids which are present in lemon juice and the determination of their role in color and flavor changes.
Approved 12/12/52 for 2 years.

u-3-1-32 W Pas
Determination of the occurrence and sanitary significance of coliform organisms (such as Escherichia coli, E. freundii, and E. intermedium) in commercially frozen orange concentrates.
Approved 12/5/52 for 2 years.

u-3-1-34 (Rev.) W FP
Determination of shelf life of heat-processed (canned) Concord type grape juice concentrate from Western grapes under the range of temperature conditions encountered in military and civilian use.
Approved 4/30/53 for 2 years.

u-3-1-35 (Rev.) W FP
Development of processes for preparing strawberry juice and concentrates thereof from sound cull fruit to conserve essential food and reduce packing house waste.
Approved 12/23/53 for 2 years.

u-3-1-36 W Phar
Determination of the chronic toxicity of 2-amino pyridine in experimental laboratory animals for the purpose of determining whether this fungicide will be safe to use for the prevention of stem-end rot in oranges.
Approved 12/16/52 for 3 years.

u-3-1-38 W FP Revision of part of u-3-1-28
Reduction of waste and quality loss in commercial processing of raspberries: Identification of pectic substances which when acted upon by enzymes cause adverse texture changes in processed fruit.
Approved 4/30/53 for 2 years.

u-3-1-39 W FP Revision of part of u-3-1-25
Determination of safe temperatures for warehousing and transportation of frozen fruits, under normal and emergency conditions: Red sour pitted cherries.
Approved 8/7/53 for 3 years.

u-3-1-40 W FP Revision of part of u-3-1-25
Determination of safe temperatures for warehousing and transportation of frozen fruits, under normal and emergency conditions: Peaches.
Approved 8/7/53 for 3 years.

u-3-1-41 W FP Revision of part of u-3-1-25
Determination of safe temperatures for warehousing and transportation of frozen fruits, under normal and emergency conditions: Raspberries.
Approved 8/7/53 for 3 years.

u-3-1-42 W Puy Revision of part of u-3-1-28
Reduction of waste and quality loss in commercial processing of raspberries: Evaluation of cleaning efficiency and berry damage in the use of various wetting agents and mechanical devices for cleaning insects and plant debris from the fruit prior to processing.
Approved 6/3/53 for 2 years.

u-3-1-43 W FP
Development of low-moisture dried peaches for military and civilian use: Evaluation of vacuum drying combined with in-package desiccation as a method of preparation.
Approved 12/5/52 for 2 years.

u-3-1-44 W FP
Development of dehydrocanned apricots (canned partially dried apricots) for military and civilian use: Determination of shelf-life under the range of temperature conditions encountered in military use.
Approved 6/3/53 for 2 years.

u-3-1-46 W FP
Development of dehydrocanned apples (canned partially dried apple slices) for military and civilian use: Determination of shelf-life under the range of temperature conditions encountered in military use.
Approved 12/5/52 for 2 years.

u-3-1-47 W FP
Determination of processing time and temperature conditions required for retention of consistency and color in the manufacture of concentrated peach puree for military and essential civilian use.
Approved 4/30/53 for 2 years.

u-3-1-48 W FP
Determination of shelf-life of heat-processed (canned) apple juice concentrate from Western apples under the range of temperature conditions encountered in military and civilian use.
Approved 4/30/53 for 2 years.

u-3-1-49 W AP
Determination of the rate of crystallization of amorphous spray-dried sucrose by x-ray diffraction, at various levels of moisture content, in order to suggest means for avoiding the troublesome caking of fruit juice powders.
Approved 12/5/52 for 2 years. Discontinuance is in preparation.

u-3-1-50 W AP
Determination of low temperature phase equilibria in dextrose and levulose solutions in order to determine their suitability for use in frozen fruit products and to understand the nature of and conditions for growth of various crystalline phases in frozen fruit products.
Approved 12/5/52 for 2 years.

u-3-1-52 W FP
Determination of processing time and temperature conditions required for retention of consistency and color in the manufacture of concentrated apricot puree for military and essential civilian use.
Approved 4/30/53 for 2 years.

u-3-1-54 W FP
Determination of time and temperature conditions required for retention of color and natural flavor in the manufacture of concentrated juice from fresh French prunes.
Approved 4/30/53 for 2 years.

u-3-1-55 W FP
Determination of processing time and temperature conditions required for retention of natural color and flavor in the manufacture of concentrated pear juice.
Approved 6/3/53 for 2 years.

u-3-1-56 W FP
Determination of processing time and temperature required for retention of natural color and flavor in the manufacture of concentrated juice from fresh Italian prunes.
Approved 4/30/53 for 2 years.

u-3-1-58 W Pas Revision of part of u-3-1-21
Prevention of off-flavor development in processed citrus juices for military and civilian use: Identification of the volatile constituents in canned orange juice and their role in causing "processed" and "storage" flavors.
Approved 11/16/53 for 2 years.

u-3-1-59 W ED
Design and development of improved equipment for pasteurizing, sterilizing, and concentrating fluid-form fruit products.
Approved 12/24/52 for 2 years.

u-3-1-60 W Pros
Development of methods for tenderizing the skins of canned Italian prunes to make this product more acceptable to consumers and thereby expand the market for prunes grown in the Pacific Northwest.
Approved 6/3/53 for 2 years.

u-3-1-61 W FP
Development of procedures for the preparation of full-flavored dehydrated strawberries for military and civilian uses: Analysis of the volatile flavor constituents to aid in devising objective tests for standardization of the flavor concentrates which must be incorporated in the dehydrated product.
Approved 4/27/53 for 2 years.

u-3-1-62 W Pas
Development of a practical process for controlling darkening and rancidity of shelled walnuts: Identification of constituents responsible for the development of darkening and rancidity during storage.
Approved 2/13/53 for 2 years.

u-3-1-63 W FP
Prevention of off-flavor development in orange juice and its concentrates: Identification of carotenoid pigments that cause the development of haylike off flavor.
Approved 4/30/53 for 2 years.

u-3-1-64 W AP
Development of a micromethod for determining aldehydic end-groups in polymeric carbohydrates for use in studying the structure of these materials in relation to the physical properties of fruit products.
Approved 5/28/53 for 2 years.

u-3-1-65 W FP
Prevention of losses in yield and quality caused by enzymatic degradation of fruits intended for processing: Investigation of the relationship of the enzymes involved in glycolysis (sugar metabolism) to maturation of fruit intended for processing.
Approved 10/30/53 for 2 years.

u-3-1-66 W Pas
Determination of shelf life of frozen and/or pasteurized orange juice concentrates from California oranges under the range of temperature conditions encountered in military and civilian use.
Approved 6/3/53 for 2 years.

u-3-1-67 W Pros,Puy
Improvement of the quality and reduction of the cost of processed soft fruits and berries of Washington and Oregon through the selection of new or improved varieties having better processing quality and greater productivity.
Approved 8/31/53 for 2 years.

u-3-1-68 W FP Revision of part of u-3-1-28
Reduction of waste and quality loss in commercial processing or raspberries: Evaluation of fruit quality changes and residue determination resulting from the use of wetting agents and other methods in cleaning of red or black raspberries for processing.
Approved 6/3/53 for 2 years.

u-3-1-69 W Pros
Determination of the effect on juice quality of maturity, grade, and preprocessing treatment of Jonathan, Golden Delicious, and Winesap apples grown in the Pacific Northwest, with a view of expanding the supply of fruit suitable for juice and concentrate manufacture.
Approved 7/24/53 for 2 years.

u-3-1-70 W FP
Development of processes for preparing commercially acceptable juices from viniferous grapes in order to effect greater utilization of these grapes.
Approved 8/4/53 for 2 years.

u-3-1-71 W FP
Dehydrated fruit juices and fruit purees: Basic investigation of the mechanism of the "locking in" of volatile fruit flavoring constituents in inert edible carriers.
Approved 8/4/53 for 2 years.

u-3-2 - Citrus and Other Fruit Utilization Investigations - Southern Region.

u-3-2-3 (Rev.) S Win
Determination of sources, types, and significance of microorganisms affecting flavor quality to aid production of high quality citrus products for military and civilian uses.
Approved 8/18/53 for 2 years.

u-3-2-4 (Rev.) S Wes
Development of Texas grapefruit concentrates stable at refrigerator temperatures (40°F. or higher) with emphasis on products suitable as military ration items.
Approved 12/24/52 for 2 years.

u-3-2-5 (Rev.) S Wes
Development of improved methods of processing Texas pink and red grapefruit to obtain products of optimum color and flavor for military and civilian use.
Approved 12/24/52 for 2 years.

u-3-2-8 (Rev.) S Win
Determination of optimum temperatures for storing Florida frozen citrus concentrates to ensure delivery of high quality products for military and civilian use.
Approved 4/30/53 for 2 years.

u-3-2-9 (Rev.) S Win
Development of highly concentrated essence-flavored Florida citrus products to save weight and space during transportation and storage.
Approved 12/5/52 for 2 years.

u-3-2-11 S Win
Development of Florida citrus concentrates stable at refrigerator temperature (40°F. or higher) with emphasis on products suitable as military ration items.
Approved 2/16/53 for 2 years.

u-3-2-12 S Win
Determination of differences in chemical composition, flavor, and stability of Florida citrus juices arising from variations in methods of extraction and finishing.
Approved 12/10/53 for 2 years.

u-3-3 - Apples and Other Fruit Utilization Investigations - Eastern Region.

u-3-3-5 (Rev.) E FV
Studies of the chemical and physical factors in sour cherries that are responsible for lowered yield, and impaired color, flavor, and texture of the finished products.
Approved 4/30/53 for 2 years.

u-3-3-7(C) E FV
Development of new and improved commercial procedures for ripening and processing Eastern freestone peaches.
Covers contract A-1s-32680. Approved 5/5/50 for 3 years. Discontinuance is in preparation.

u-3-3-8(C) E FV
Pilot-plant studies on improving the texture of processed sour cherries by suitable modification in soaking and processing procedures.
Approved 8/13/52 for 3 years. Covers contract A-1s-33704.

u-3-3-9 E FV
Development of improved dehydrated products from blueberries and cranberries for military rations and essential civilian needs.
Approved 8/7/52 for 2 years.

u-3-3-10 E FV
Development of full-flavored dried apple products, such as nuggets and powdered sauce, from Eastern grown fruit.
Approved 7/24/53 for 2 years.

u-3-3-11 (Rev.) E ED
Preparation of full-flavor, low-bulk fruit juice concentrates from Eastern apples, grapes, cherries, blackberries, red raspberries, and strawberries, suitable for the armed forces.
Approved 11/16/53 for 2 years.

u-3-3-12 E ED Revision of part of u-3-3-3
Pilot-plant research on the concentration, drying, and flavor preservation of juices from Eastern Concord grapes and apples to develop full-flavor natural fruit juice powders, for military and civilian use.
Approved 12/10/53 for 2 years.

u-3-3-14(C) Office of Chief of Bureau
Survey of food and nutrition research in progress in the United States.
Covers contract A-1s-33697 (jointly with BHNHE project a-1-2-11C(a)).
Approved 7/11/52 for 2 years.

u-3-3-15 E FV
Development of expanded outlets for low-grade apples through improvement of apple sauce quality.
Approved 7/24/53 for 2 years.

u-3-4 - Potato and Other Vegetable Utilization Investigations - Western Region.

u-3-4-1 (Rev.) W Pas
Development of a pasteurized or frozen concentrated tomato product suitable for reconstituting as a juice to conserve military storage and shipping space.
Approved 4/6/53 for 2 years.

u-3-4-2 (Rev.) W Pros
Determination of suitability, from the standpoint of processed vegetable palatability, of new or recently-developed insecticides to permit use of most potent agents consistent with palatable end products.
Approved 7/24/53 for 5 years.

u-3-4-3 (Rev.) W ED
Design and development of equipment needed by the dehydration industry for the continuous final drying of vegetables to a low moisture content.
Approved 7/10/53 for 2 years.

u-3-4-6 (Rev.) W VP Revision of part of u-3-4-6
Development of high quality canned vegetable products of improved storage stability by control of food spoilage microorganisms with antibiotics: Mode of action of subtilin on food spoilage microorganisms.
Approved 4/30/53 for 2 years.

u-3-4-7 (Rev.) W VP
Retention of quality in diced white potatoes during dehydration: Influence of drying conditions on "browning".
Approved 12/5/52 for 2 years.

u-3-4-9 (Rev.) W VP
Development of methods for preparing dehydrofrozen lima beans (a concentrated frozen product affording economy in freezing storage space) for feeding of civilian and armed services personnel.
Approved 12/5/52 for 2 years.

u-3-4-15 (Rev.) W VP
Determination of optimal conditions for storage of dry beans in order to define proper warehouse facilities: Effect of moisture on storage stability.
Approved 4/30/53 for 3 years.

u-3-4-17 (Rev.) W VP Revision of part of u-3-4-17
Development of high quality dehydrated mashed potato (potato granules) for military and civilian use: Effect of pre-drying operations on properties of the product.
Approved 6/3/53 for 2 years.

u-3-4-22(C) W VP
Development of high quality canned vegetable products of improved storage stability by control of food spoilage microorganisms with antibiotics: Effect of antibiotics on thermal death times.
Covers contract A-ls-33449. Approved 11/5/51 for 4 years.

u-3-4-23 W VP
Protection of dehydrated mashed potatoes (potato granules), a military ration item, against oxidative deterioration during storage, by the use of phenolic antioxidants.
Approved 12/3/52 for 2 years. Discontinuance is pending.

u-3-4-24(C) W VP
Antibiotic com ounds capable of increasing the rate of growth and efficiency of feed utilization of poultry and swine: Nutritional evaluation, by means of chick tests, of experimentally produced antibiotic materials, in order to provide controls on the isolation, characterization, and development of commercially feasible forms of such antibiotics.
Covers contract A-1s-33684. Approved 4/21/52 for 2 years.

u-3-4-25(C) W VP
Evaluation of color as an index of maturity in raw and processed sweet corn for military and emergency feeding.
Covers contract A-1s-33687. Approved 5/15/52 for 2 years.

u-3-4-26 W Phar
Determination of the effect of rutin in the treatment of acute frostbite injury in laboratory animals exposed to a temperature of -55°C.
Approved 12/23/52 for 2 years.

u-3-4-27 W Phar
Determination of the metabolic fate of rutin in experimental laboratory animals by means of the isolation and identification of its degradation products in various body fluids for the purpose of obtaining a better understanding of mechanism of action, optimum dosage, and best mode of administration for the treatment of cold injury, and other therapeutic uses.
Approved 12/16/52 for 2 years.

u-3-4-28 W Puy
Retention of nutritive values of spinach during processing for freezing: Post-blanch losses of soluble nutrients during removal of excess water by different procedures.
Approved 7/10/53 for 2 years.

u-3-4-29 W VP Revision of part of u-3-4-6
Development of high quality canned vegetable products of improved storage stability by control of food spoilage microorganisms with antibiotics: Action of antibiotics singly or in mixtures on food spoilage microorganisms.
Approved 4/30/53 for 2 years.

u-3-4-30 W VP
Prevention of browning in processed white potatoes: Study of the enzymes affecting formation of the carbohydrate constituents which participate in nonenzymatic browning.
Approved 4/14/53 for 2 years.

u-3-4-32 W VP Revision of part of u-3-4-17
Development of high quality dehydrated mashed potato (potato granules) for military use: Changes in properties of starch during pre-processing and drying.
Approved 4/30/53 for 2 years.

u-3-4-33 W AP Revision of part of u-3-1-29
Development of a rapid method for the determination of the water content of vegetables by means of nuclear magnetic resonance, to provide information needed for the improvement of the quality of vegetable products.
Approved 6/3/53 for 2 years.

u-3-4-35 W AP Revision of u-3-1-30
Development of a new instrument for the rapid measurement of reflectance color of yellow sweet corn in order to save manpower and eliminate wastage of material in the commercial canning and freezing of this food product.
Approved 10/3/52 for 2 years.

u-3-4-36 W VP
Determination of safe temperatures for the warehousing and transportation of frozen green beans under normal and emergency conditions.
Approved 6/3/53 for 4 years.

u-3-4-37 W VP
Development of methods for measuring maturity in frozen lima beans.
Approved 8/27/53 for 1 year.

u-3-4-38 W VP
Development of improved methods for preventing browning of dehydrated potatoes during processing and storage: Reaction of simple amines with simple aldehydes as model systems.
Approved 10/30/53 for 2 years.

u-3-4-39 W VP
Antibiotic compounds capable of increasing the rate of growth and efficiency of feed utilization of poultry and swine: Isolation of the effective antibiotic compounds from cultures of rapidly growing bacteria which have been found to have favorable nutritional effects.
Approved 7/24/53 for 2 years.

u-3-4-40 W VP
Development of methods for preparing dehydrofrozen green beans (a concentrated frozen product affording economy in freezing storage space) for feeding of civilian and armed services personnel.
Approved 12/5/52 for 2 years.

u-3-4-41 W VP
Development of methods for preparing dehydrated white potato dice: Influence of predrying operations on initial quality and storage stability.
Approved 6/3/53 for 2 years.

u-3-4-42 W VP
Determination of safe temperatures for the warehousing and transportation of frozen green peas under normal and emergency conditions.
Approved 6/3/53 for 4 years.

u-3-4-43 W ED,VP
Engineering development of an air-suspension drier for potato granules, in order to improve product quality and operating economy.
Approved 6/3/53 for 2 years.

u-3-4-44 W VP
Effect of storage at Stockton Annex, Sharpe General Depot, at Naval Supply Center, Oakland, California, and at the White Mountain Research Laboratory of the University of California, on quality of Armed Forces procurements of dehydrated white potato dice, dehydrated mashed potatoes (potato granules), and dehydrated onions.
Approved 12/24/52 for 3 years.

u-3-4-45 W VP
Antibiotic compounds capable of increasing the rate of growth and efficiency of feed utilization of poultry and swine: Selection of suitable antibiotic-producing microorganisms capable of rapid growth on vegetable byproducts.
Approved 7/3/52 for 2 years.

u-3-4-46 W AP
Development of a chromatographic method for determination of pentoses, hexoses, and the known di- and trisaccharides in vegetables.
Approved 6/12/53 for 2 years.

u-3-4-47 W Puy
Improvement of the quality and reduction of the cost of processed vegetables of Washington, Oregon and Idaho through the selection of new or improved varieties having better processing quality and greater productivity.
Approved 8/31/53 for 2 years.

u-3-4-48 W VP
Development of a tomato juice powder as a base for the preparation of tomato juice or other tomato products: Effects of processing and packaging procedures on quality and storage stability.
Approved 8/4/53 for 2 years.

u-3-4-49 W VP
Development of improved caustic peeling methods for the potato pre-peeling industry by use of low temperatures to avoid surface cooking.
Approved 8/27/53 for 2 years.

u-3-5 - Sweetpotatoes, Cucumbers, and Other Vegetable Utilization Investigations - Southern Region.

u-3-5-1 (Rev.) S Ral
Determination of the origin and nature of pectic enzymes in commercial cucumber fermentations responsible for spoilage (softening) of cucumber salt-stock as a basis for developing practical procedures for avoiding losses.
Approved 12/5/52 for 2 years.

u-3-5-2 (Rev.) S Ral
Development of practical methods of controlling pectic enzyme activity to avoid losses caused by softening spoilage of salt-stock cucumbers.
Approved 12/5/52 for 2 years.

u-3-5-4 S FV
Determination of the identity and relative quantities of different sugars in sweetpotatoes during storage and processing as a basis for improving the quality of the processed products for military and civilian uses.
Approved 12/1/53 for 2 years.

u-3-5-5 S Wes
Improvement of methods for cleaning, canning and freezing blackeyed peas to produce products having wider civilian and military acceptance.
Approved 4/30/53 for 2 years.

u-3-5-6 S Wes
Investigation of methods for improving the quality of tomato products produced from tomatoes grown in the South Texas area to meet civilian and military requirements.
Approved 6/3/53 for 2 years.

u-3-5-7 S FV
Determination of changes in chemical composition at different stages in processin as a basis for improving the acceptability and nutritive value of dehydrated sweetpotato products.
Approved 11/25/53 for 2 years.

u-3-5-8 S FV
Analysis of existing operations in sweetpotato processing plants to relate these operations to the production of acceptable food products.
Approved 9/18/53 for 2 years.

u-3-6 - Potato and Other Vegetable Utilization Investigations - Eastern Region.

u-3-6-1 E FV
Preparation of unsaturated starch ethers and their evaluation for industrial use.
Approved 7/9/45; extended 7/15/48; extended 5/31/51 to 6/30/54. Discontinuance is pending.

u-3-6-2 (Rev.) E FV
Development of a quantitative method for the isolation and characterization of the free amino acids of the potato with the ultimate objective of improving the quality of stored and processed products.
Approved 11/30/53 for 2 years.

u-3-6-5 (Rev.) E FV
Development of ready-to-eat highly nutritious rations for the armed services based on compressed potato chips.
Approved 12/8/52 for 2 years.

u-3-6-6(C) E FV
Development of commercial-scale methods of dehydrating vegetable wastes for feedstuffs.
Covers contract A-1s-30929. Approved 12/26/50 to August 1952. Discontinuance is pending.

u-3-6-10(C) E FV
Improvement of the quality of processed tomato products, especially for military storage conditions, by determining the effect of heat, air, ripeness, variety, growing conditions, and other factors on color and ascorbic acid content.
Covers contract A-1s-33461. Approved 2/5/52; extended 12/23/53 to 2/5/56.

u-3-6-11 (Rev.) E AP
Determination of the relationship between tomato juice consistency and the physical nature of the comminuted tomato tissue with a view to developing improved tomato juice products for the armed forces and the civilian population.
Approved 8/12/52 for 2 years.

u-3-6-14 E BACC
Production from tomato plants of tomatidine and preparation of derived products for laboratory and clinical evaluation as antifungal agents (antibiotics) by the Armed Services and other agencies.
Approved 10/6/52 for 2 years.

u-3-6-15 E FV
Use of organic solvents such as methanol, ethanol, and acetone in the development of dehydrated mashed potatoes of improved texture and flavor to fill the needs of the armed forces.
Approved 7/24/53 for 2 years.

u-3-6-16 E FV
Identification in peas, snap beans, corn, and cabbage of nitrogen constituents such as water-soluble amides, amino acids, peptides, bases, and nitrates, and the determination of their role in browning and other reactions which adversely affect the quality of these products when dehydrated.
Approved 10/3/52 for 2 years.

u-3-6-17 E BACC Supersedes u-5-5-3
Production from selected Solanaceae plants of alkaloids for laboratory and clinical evaluation as amoebicides, antimalarials, antibiotics, and hypotensive and cardiac drugs by the Armed Services and other agencies.
Approved 1/27/53 for 2 years.

u-3-6-18(C) E FV
Determination of the relationship between carbohydrate, amino acid, ascorbic acid, and phosphate content of potatoes and development of discoloration during chip frying.
Covers contract A-ls-33724. Approved 1/26/53 for 2 years.

u-3-6-19 E FV
Development of new food products, analogous to potato chips, from carrots, beets, parsnips, and other vegetables.
Approved 7/24/53 for 2 years.

u-4 - OILSEED UTILIZATION INVESTIGATIONS.

u-4-1 - Cottonseed, Peanuts, and Other Oilseed Utilization Investigations - Southern Region.

u-4-1-2 (Rev.) S Bog
Investigation of the yield and quality of tung oil produced during commercial milling of tung fruit to discover opportunities for improving yield of high-quality oil.
Approved 7/24/53 for 2 years.

u-4-1-4 (Rev.) S ED
Development of method of preparing cottonseed meats for extraction to improve yields and quality of oil and meal needed for military and essential civilian food and feed use.
Approved 6/2/53 for 2 years.

u-4-1-5 (Rev.) S ED
Development and evaluation of filtration-extraction as an efficient process for increasing the recovery of food oil and improving quality of meal from cottonseed to meet increasing demands for these products for military and essential civilian food and feed use.
Approved 5/14/53 for 2 years.

u-4-1-6 (Rev.) S ED Revision of part of u-4-1-6
Development of a practical solvent process for winterizing or fractionating refined and bleached cottonseed oil to provide the industry with improved methods for making salad oils liquid at refrigerator temperatures and tailor-made fats for use as edible coatings in essential foodstuffs.
Approved 12/3/52 for 2 years.

u-4-1-8 (Rev.) S O Revision of part of u-4-1-8
Exploratory investigation of the transformation of unsaturated fatty acids present in cottonseed oil foots into products useful as plasticizers, lubricants, and surface active agents.
Approved 7/10/53 for 1 year.

u-4-1-9 (Rev.) S O
Development of improved enrobing fats, highly plastic fats, and related products needed in industry by establishing the relationships between the utility of various tailor-made fats and their composition and physical properties.
Approved 9/9/53 for 2 years.

u-4-1-12 (Rev.) S O
Development of fundamental information on the properties of peanut proteins needed to diversify, expand, and upgrade the food utilization of peanuts.
Approved 9/8/53 for 2 years.

u-4-1-13 S O
The application and control of the enzymes and enzyme systems of cottonseed and peanuts and their derived products.
Approved 2/6/45; extended 2/13/48 to 2/6/53. Discontinuance is in preparation.

u-4-1-14 (Rev.) S AP, O
Determination of certain chemical characteristics of cottonseed and the oils and meals made by different methods of commercial processing to produce oils of improved quality for military and essential civilian food uses, and meals of higher nutritive value for animal feed.
Approved 4/3/53 for 2 years.

u-4-1-15 (Rev.) S AP
Determination of composition of cottonseed as influenced by environment and variety to aid selection of seedstock for maximum production in different areas and segregation of processed oils for different food uses.
Approved 12/16/52; extended 10/23/53 to 12/16/54.

u-4-1-16 (Rev.) S O Revision of part of u-4-1-16
Development of laboratory methods for estimating nutritive value of protein in cottonseed meals to guide selection of processing conditions and thereby increase production of protein feeds of high nutritive value needed for military and essential civilian meat production.
Approved 7/6/53 for 2 years.

u-4-1-18(C) S ED
Improvement of the process for continuous screw pressing of cottonseed.
Covers contract A-1s-32682. Approved 12/22/49; extended 6/1/53 to 3/15/54.

u-4-1-19(C) S O
Study of the influence of methods of processing of cottonseed meal on the utilization of the meal in foods (baked goods).
Covers contract A-1s-33050. Approved 4/30/51 for 2 years. Discontinuance is in preparation.

u-4-1-20 (Rev.) S O
Development of vitamin-fortified peanut butter of improved quality for military rations.
Approved 6/2/53 for 1 year.

u-4-1-21 (Rev.) S O Revision of part of u-4-1-21
Development of new-type fats (acetostearins, acetooleins, etc.) from cottonseed oil for use in intravenous feeding, enrobing (coating) of military rations, and plasticizing hard fats, waxes, and polymers.
Approved 6/29/53 for 2 years.

u-4-1-22 S O
Investigation of the processes and products of catalytic hydrogenation of ethylenic linkages in cottonseed and peanut oils.
Approved 10/5/49 for 3 years. Discontinuance is in preparation.

u-4-1-23 (Rev.) S O
Chemical modification of tung oil and tung oil fatty acids by means of mercury-containing compounds to give products useful as fungicides, insecticides, and plant growth regulators.
Approved 9/18/53 for 2 years.

u-4-1-25 S O
Identification and development of means for control of fat-splitting microorganisms that may cause free fatty acid formation in the seed.
Approved 8/24/53 for 2 years.

u-4-1-26(C) S O, AP
Investigation of the properties and reactions of gossypol to provide basic data to aid the development of new processing conditions to improve the quality of commercial cottonseed meal and oil.
Covers contract A-1s-33830. Approved 7/21/53 for 3 years.

u-4-1-27 S O Revision of part of u-4-1-16
Development of means for producing cottonseed meals suitable for unrestricted feeding to swine and poultry by use of chemical treatments to inactivate a growth-inhibiting constituent (gossypol) in the seed.
Approved 7/24/53 for 2 years.

u-4-1-28 DC ARD
Determination of the effect of progressive hydrolysis of the allergenic components of cottonseed protein, in counteracting the harmful action of these components in foods and in medical and industrial applications.
Approved 9/8/53 for 2 years.

u-4-1-29 S ED
An engineering cost analysis of solvent extraction methods and facilities to evaluate feasibility for small mill processing of cottonseed.
Approved 10/30/53 for 2 years.

u-4-1-30 S ED Revision of part of u-4-1-6
Development of a practical solvent process for winterizing or fractionating refined and bleached peanut oil to provide the industry with improved methods for making salad oils liquid at refrigerator temperatures and tailor-made fats for use as edible coatings in essential foodstuffs.
Approved 12/8/52 for 2 years.

u-4-1-32 S O Revision of part of u-4-1-21
Development of new-type fats (acetostearins, acetooleins, etc.) from peanut oil for use in intravenous feeding and plasticizing hard fats, waxes, and polymers.
Approved 9/18/53 for 2 years.

u-4-1-33 S O
Characterization of sterols, fatty acids, and other components of present and potential value from cottonseed oil foots to provide basic data needed in development of new outlets.
Approved 6/2/53 for 2 years.

u-4-1-34 S O
Development of means for increasing the supply of high grade cottonseed oil by the isolation, identification, and removal of pigment responsible for the color of refined and bleached oil.
Approved 7/24/53 for 2 years.

u-4-1-35 S O Revision of part of u-4-1-8
Development of refining and re-refining processes to produce higher yields of cottonseed oil of acceptable quality from oils off-grade with respect to color.
Approved 12/22/53 for ½ year.

u-4-1-36 S O
Determination of the nature of "bound" gossypol formed during cottonseed processing to aid in the production of cottonseed meals of higher nutritive value for swine and poultry.
Approved 8/4/53 for 2 years.

u-4-1-37 S AP
Investigation of gossypol-metallic ion complexes as an approach to inactivating gossypol in the production of cottonseed meals of higher nutritive value for animal feeding.
Approved 8/24/53 for 2 years.

u-4-1-38 S O, Bog
Investigation of processing conditions to develop feeds from tung press cake and increase the value of tung products.
Approved 9/18/53 for 1 year.

u-4-2 - Soybean and Other Oilseed Utilization Investigations - Northern Region.

u-4-2-2 (Rev.) N OP
Isolation of water-soluble components of soy flour and determination of their effects on the physical characteristics of bread.
Approved 6/12/53 for 1 year.

u-4-2-3 (Rev.) N OP
Development of fat-soluble metal deactivating compounds for improving stability of soybean oil shortenings for use in Army rations and civilian products.
Approved 12/3/52 for 2 years.

u-4-2-7 (Rev.) N ED
Investigation, on a pilot-plant scale, of the alkali-refining of soybean oil and the addition of crude phosphatides for the purpose of producing a refined oil of improved flavor stability for civilian consumption and for utilization in military rations.
Approved 12/4/52 for 2 years.

u-4-2-9 (Rev.) N OP
Studies on the relation between undesirable flavors and compounds produced in the autoxidation of linolenic acid, a constituent of soybean oil, to secure data necessary for the flavor improvement of the oil for use in Army rations and essential civilian products.
Approved 12/4/52 for 2 years.

u-4-2-10(C) N OP
Volatile oxidative products derived from more polar polymers containing dienoic and trienoic conjugation derived from linolenic esters.
Covers contract A-1s-33421. Approved 5/21/51; extended 8/24/53 to 12/18/53.

u-4-2-11 (Rev.) N OP
Development of methods of incorporating soy flour into bread and other bakery products to improve the protein quality of military and civilian baked goods.
Approved 12/24/52; extended 12/9/53 to 6/30/54.

u-4-2-13(C) N OP
Isolation and identification of anti-soybean-growth inhibitor.
Covers contract A-1s-33426. Approved 5/24/51 for 3 years.

u-4-2-17 (Rev.) N OP
Development of a global edible spread from soybean oil and other vegetable oils of the Northern region for bread in military rations.
Approved 7/3/53 for 2 years.

u-4-2-18(C) N OP
Toxicity of soybean oil meal resulting from extraction with trichloroethylene: Determination of the quantitative toxicity of trichloroethylene-extracted soybean oil meal (TESOM) to young cattle and of the possible toxicity of TESOM to swine and poultry.
Covers contract A-1s-33469. Approved 4/23/52; extended 10/25/53 to 7/21/54.

u-4-2-19(C) N OP
Toxicity of soybean oil meal resulting from extraction with trichloroethylene: Development of assay methods for toxicity using calves and guinea pigs.
Covers contract A-1s-33468. Approved 4/23/52; extended 10/25/53 to 4/23/54.

u-4-2-20 N OP
Toxicity of soybean oil meal resulting from extraction with trichloroethylene: Preliminary chemical characterization of the cause of toxicity.
Approved 9/24/52 for 2 years.

u-4-2-21 N AP
Development of an improved method for color-grading green soybean oil from frost-damaged soybeans to increase supplies of edible oil essential to civilian and military use.
Approved 12/3/52 for 2 years.

u-4-2-22(C) (Rev.) N OP
Laboratory and commercial testing of alcohol-washed soybean flakes, water solubles of hexane flakes, and other soybean protein fractions and concentrates to determine their utility as a component of frozen confections, and special meat products for civilian and military consumption.
Covers contract A-ls-33806. Approved 4/3/53 for 2 years.

u-4-2-23 N ED
The development, on a pilot-plant scale, of methods for producing a global edible spread suitable for civilian consumption and army rations.
Approved 4/14/53 for 2 years.

u-4-2-24(C) N OP
Chemical and physical characterization of the toxic protein isolated from untoasted hexane-extracted soybean oil meal.
Covers contract A-ls-33800. Approved 2/24/53 for 2½ years.

u-4-2-28 N OP
Studies on the relation of pigment composition and other minor constituents to color and browning of soybean phosphatides to increase their suitability for food use.
Approved 7/24/53 for 2 years.

u-4-2-29 N OP
Isolation and identification of the beany or bitter principles in soybeans, substances that impart undesirable flavors to edible soybean products thereby reducing their consumption.
Approved 6/2/53 for 2 years.

u-4-2-30(C) N OP
Survey of the market potential for soybean, linseed, and related fats and oils as concerns their drying oil uses.
Covers contract A-ls-33810. Approved 6/8/53 for 2 years.

u-4-2-31(C) N OP
Application of bioassay to the isolation of the toxic principle in trichloroethylene-extracted oilseed meals.
Covers contract A-ls-33836. Approved 10/23/53 for 3½ years.

u-4-2-32(C) N OP
Evaluation of fractions and concentrates of trichloroethylene-extracted oilseed meals, designed to isolate and identify the toxic factor.
Covers contract A-ls- . Approved 10/25/53 for 3 years.

u-5 (Rev. 5/53) - SUGAR AND SPECIAL PLANTS UTILIZATION INVESTIGATIONS.

u-5-1 - Sugars and Sirups Investigations.

u-5-1-2 (Rev.) S SP
Development of military ration candies meeting acceptability and storage quality requirements of the Quartermaster Corps.
Approved 11/25/53 for 2 years.

u-5-1-3 (Rev.) S SP
Improving storage life of candies for military ration and civilian uses by incorporation of humectants and emulsifiers.
Approved 6/3/53 for 2 years.

u-5-1-4 (Rev.) S Hou
Investigation of the starch in sugarcane and its products to develop improved processing methods that will give high yields of premium quality sugar.
Approved 9/9/53 for 2 years.

u-5-1-8 (Rev.) E B
Development of means of sterilizing low-grade honey against bee diseases, to allow its feeding to bees, thus providing an outlet for such honey.
Approved 12/3/52 for 2 years.

u-5-1-9(C) E B
Evaluation of dry honey - skim milk as an ingredient of baking mixes.
Covers contract A-1s-33039. Approved 10/18/50; extended 7/20/53 to 5/55.

u-5-1-10 (Rev.) E ED
Application of engineering principles to the design of new types of equipment and the development of methods for the production of new and improved maple products by rapid evaporation of sap and control of color and flavor development.
Approved 6/2/53 for 3 years.

u-5-1-11 (Rev.) E B
Chemical investigations on the factors responsible for the development of flavor and color during the processing of maple sap to provide basic information for the development of new and improved maple products.
Approved 9/25/52 for 3 years.

u-5-1-12 (Rev.) S SP
Pilot plant studies of sugarcane processing to develop methods for obtaining maximum recovery of sugar from cane of different kinds and qualities.
Approved 5/5/53 for 2 years.

u-5-1-14 (Rev.) N F
Production of citric acid by submerged mold fermentation from beet and cane molasses as required for essential civilian use.
Approved 12/24/52; extended 12/17/53 to 2/1/54.

u-5-1-17(C) E B
A study of factors affecting the quality of maple sap to facilitate increased utilization of maple products for essential military and civilian needs.
Covers contract A-1s-33459. Approved 11/27/51 for 4 years.

u-5-1-18(C) (Rev.) W FC
Comparison of batch and continuous cell-disruptive methods with batch and counter current diffusion methods of removing sugar from the sugar beet, in order to test the possibility of decreasing labor, fuel, and water costs of the domestic beet sugar industry.
Covers contract A-1s-33464. Approved 8/27/53 for 3 years.

u-5-1-20 (Rev.) W FC
Determination of the nature and amount of acidic non-sugar impurities in sugar beet processing liquors to aid in the development of a more efficient method for purifying the liquors and thereby increase the yield of domestic beet sugar.
Approved 12/12/52 for 2 years.

u-5-1-21 W FC
Improvement of the marketability of beet sugar by developing a method for removal of floc-forming material present in some sugars.
Approved 6/12/53 for 2 years.

u-5-1-22(C) S SP
Development of a sample mill test for determining the milling characteristics of sugarcane and the yield and quality of juice for production of cane sugar.
Covers contract A-1s-33713. Approved 12/2/52 for 2 years.

u-5-1-25 E B
Improvement of the quality of maple products through study of the influence of microorganisms on the composition, quality, and keeping characteristics of maple sap and sirup.
Approved 10/3/52 for 3 years.

u-5-1-26 S SP
Isolation, identification, and estimation of the organic acids of sugarcane juice as a basis for improving processing methods to increase yields of sugar from domestically produced sugarcane.
Approved 6/3/53 for 2 years.

u-5-1-27 W FC
Examination of the accuracy of the Sachs-LeDocte method of sucrose analysis for California sugar beets and, if necessary, the development of a method more satisfactory to both growers and processors.
Approved 5/28/53 for 2 years.

u-5-1-28(C) W FC
Continuous crystallization of beet sugar by use of ultrasonic irradiation to increase uniformity of crystal sizes and increase efficiency of sugar house operations.
Covers contract A-1s-33803. Approved 2/26/53 for 2 years.

u-5-1-29 E B
Improvement of methods of carbohydrate analysis of honey to obtain information necessary in studies to develop new and expanded markets for honey and aid in maintenance of crop pollination.
Approved 6/3/53 for 2 years.

u-5-1-30(C) E B
Development of methods for commercial formulation of cake containing high levels of honey, to expand its use in the baking industry.
Covers contract A-ls-33831. Approved 9/9/53 for 5 years.

u-5-1-31(C) E B
Improvement of the quality of maple sirups by eliminating the contamination of the sap with microorganisms and their metabolic (fermentation) products in the tap hole and during storage.
Covers contract A-ls- . Approved 10/26/53 for 2 years.

u-5-2 - Naval Stores Investigations.

u-5-2-4(C) S Olu
Development of a practical ozone oxidation process for converting turpentine into acids suitable for the production of synthetic lubricants of defense value.
Covers contract A-ls-33691. Approved 3/25/52 for 3 years.

u-5-2-5 (Rev.) S Olu
Development of a practical air oxidation process for converting turpentine into acids suitable for the production of synthetic lubricants, plasticizers, and fibers of defense value.
Approved 6/4/53 for 2 years.

u-5-2-6 (Rev.) S Olu
Use of pinic and pinonic acids from turpentine in producing premium-grade plasticizers for incorporation into military and other essential plastic products serviceable at low temperatures.
Approved 6/5/53 for 2 years.

u-5-2-8 S Olu
Development of practical methods for making improved resinates of cobalt, manganese, and lead for use as paint driers to replace materials such as naphthenates.
Approved 10/2/52 for 2 years.

u-5-2-9 S Olu
Development of practical methods for making improved metal resinates (other than cobalt, manganese, and lead) for use in varnish resins, lubricants, and incendiaries.
Approved 6/3/53 for 2 years.

u-5-2-10 (Rev.) S Olu
Investigations of the composition and properties of the acid constituents of pine gum and gum rosin to provide new fundamental knowledge and aid research to improve the competitive position of pine gum products.
Approved 9/18/53 for 2 years.

u-5-2-11(C) S Olu
Development of a practical process using nitrogen-containing oxidants and/or peroxides to convert alpha-pinene (from turpentine) to pinic acid, a material from which premium-quality synthetic lubricants and other products can be made for military and civilian use.
Covers contract A-ls-33820. Approved 5/14/53 for 3 years.

u-5-2-12 S Olu
Development of industrial chemicals, including plasticizers and lubricants, from pinonic acid - a chemical made from turpentine - by reactions involving the methyl ketone group.
Approved 11/25/53 for 2 years.

u-5-2-13 S Olu
Investigation of the use of inexpensive oxidants for converting turpentine (terpenes) into acids useful in plasticizers, lubricants, resins, and other products.
Approved 12/10/53 for 2 years.

u-5-3 - Tobacco Investigations.

There are no line projects under this work project.

u-5-4 (Rev. 6/53) - Tanning Materials Utilization Investigations.

u-5-4-1 (Rev.) E ED
Development on a pilot-plant scale of methods for utilizing the bark of hemlock slabs as a domestic source of critically needed tannin.
Approved 10/5/53 for 1 year.

u-5-4-5 (Rev.) E H
Development of sumac to augment the inadequate vegetable tannin supplies required for production of military and civilian leathers, by evaluating the tannins from various strains now under study to determine their suitability for commercial production and for use in tanning, particularly in blends for tanning heavy leather.
Approved 2/13/53; extended 7/24/53 to 1/1/54. Discontinuance is pending.

u-5-4-7 (Rev.) E H
Evaluation and development of new and potential tanning materials from domestic plant sources to supplement short supplies needed for making military and civilian leathers.
Approved 10/16/53 for 2 years.

u-5-4-10 (Rev.) E H
Development of canaigre to augment critically short domestic supplies of vegetable tannin for making military and civilian leathers by improving tannin extraction procedures and tanning extract quality.
Approved 12/1/53 to 6/30/55.

u-5-4-15 E H
Improvement of the serviceability of leather, a critical military and essential civilian product, through basic studies on the composition of the vegetable tannins from canaigre.
Approved 11/18/53 for 2 years.

u-5-5 - Evaluation of the Composition and Chemical Properties of Uncultivated Plant Species.

u-5-5-1 (Rev.) W Phar
Determination of the acute and chronic toxicities of dihydrorotenone, allethrins, and pyrethrins in experimental laboratory animals for the purpose of determining whether these insecticides will be safe to use in the production of essential civilian food crops.
Approved 1/14/53 for 3 years.

u-5-5-2 (Rev.) W Phar
Determination of the acute and chronic toxicities of DDT, chlordane, and lindane in experimental laboratory animals for the purpose of determining whether these insecticides will be safe to use in the production of essential civilian food crops.
Approved 1/14/53 for 3 years.

u-5-5-4 (Rev.) W Phar
Determination of the acute and chronic toxicities and mechanisms of physiological effects of tomatine, tomatidine, and dihydrotomatidine in experimental laboratory animals for the purpose of determining whether these compounds will be safe to use in the treatment of fungal diseases that are now of primary concern to the military.
Approved 1/14/53 for 2 years.

u-5-5-7 (Rev.) E B
Screening of plant materials for steroidal sapogenins suitable for synthesis of cortisone: Isolation, identification, and quantitative determination.
Approved 12/4/52 for 2 years.

u-5-5-8 E BACC
Synthesis of plant-growth regulating derivatives of amino acids and sugars, and carbamates for evaluation by the Army Chemical Corps Biological Laboratories and other agencies.
Approved 12/5/52 for 2 years.

u-5-5-9 E B
Screening of plant materials for flavonol, alkaloid, tannin, and sterol constituents of potential medicinal and industrial value.
Approved 8/4/53 for 2 years.

u-5-5-10 E B
Screening plant materials for cortisone precursors: Hydrolytic and oxidative actions of microorganisms on saponins and sapogenins of potential use for cortisone synthesis.
Approved 6/2/53 for 2 years.

u-5-5-11 E B
Screening plant materials for cortisone precursors: Determining the relative suitability of various steroidal sapogenins for cortisone production in respect to the ease and yield of the oxidative cleavage of their side chains.
Approved 6/2/53 for 2 years.

u-5-5-12 E B
Screening plant materials for cortisone precursors: Efficient chemical conversion of hecogenin to 11-oxy derivatives.
Approved 6/2/53 for 2 years.

u-5-5-13 E BACC
Preparation of low-volatile ester plant-growth regulators from hydroxy- and epoxy-compounds of agricultural origin for evaluation by both civilian and military agencies.
Approved 8/4/53 for 2 years.

u-6 (Rev. 5/53) - POULTRY, DAIRY, AND ANIMAL PRODUCTS UTILIZATION INVESTIGATIONS.

u-6-1 - Poultry Products Utilization Investigations.

u-6-1-4 (Rev.) W PP
Development of satisfactory flavor and taste appraisal methods needed for developing new or improved poultry and egg food products of both military and essential civilian use.
Approved 6/29/53 for 2 years.

u-6-1-6 (Rev.) W PP
Investigation of the extension of the storage life of frozen turkeys by use of antioxidants to retard rancidity development.
Approved 6/2/53 for 2 years.

u-6-1-7 (Rev.) W PP
Determination of the effect of poultry killing and scalding procedures (in terms of the chemical and physical changes they cause and in terms of quality retention) on poultry stored under domestic or military conditions.
Approved 6/2/53 for 2 years.

u-6-1-9 (Rev.) W PP
Development of means for retarding flavor and texture changes in precooked frozen turkey meat dishes suitable for meal service where preparation time or facilities are limited (e.g. on airplanes).
Approved 6/2/53 for 2 years.

u-6-1-13(C) W PP
Development of more rapid and more accurate methods for counting and detecting food poisoning Salmonella organisms found in eggs (and other foods).
Covers contract A-ls-33428. Approved 6/6/51 for 4 years.

u-6-1-16 W PP
Characterization of the chemical reactions of poultry lipids under fluctuating temperature conditions that are encountered in the commercial and military handling of poultry products.
Approved 12/24/52 for 2 years.

u-6-1-17(C) W PP
Improvement in the storage life and appraisal of health hazards of fresh cut-up poultry products by development of improved processing practices, with special emphasis on microbiological factors.
Covers contract A-ls-33695. Approved 5/21/52 for 4 years.

u-6-1-18 DC ARD
Determination of relationship of dose of allergen to the duration of response, for the purpose of improving tests currently used in the biological assay of allergens occurring in agents of biological warfare and other antigens.
Approved 9/11/53 for 2 years.

u-6-1-19 W AP
Determination, by means of x-ray diffraction, of the molecular structure of the crystalline egg white protein, lysozyme, in order to throw light on the structural characteristics which may be responsible for its bactericidal action, and, more broadly, on the structure of other globular proteins which exhibit enzymic or antibody activity.
Approved 12/5/52 for 2 years.

u-6-1-20 W PP
Evaluation of the role of reducing agents in such shell egg deteriorations as are evidenced by thinning of the egg white and weakening of the yolk membrane.
Approved 9/29/52 for 2 years.

u-6-1-21 W PP
Development of improved and more uniform egg white products for military and civilian use by evaluating the roles played by individual egg white components in the functional properties of egg white.
Approved 12/12/52 for 2 years.

u-6-1-22 W PP
Evaluation of thickening agents for their effectiveness in preventing liquid separation and gelation in canned poultry products held for military or civilian use.
Approved 12/5/52 for 2 years.

u-6-1-23 W PP
Determination of constituents of chicken broth that are responsible for chicken flavor, as a basis for better methods of developing and retaining chicken flavor in heat processed chicken products.
Approved 6/2/53 for 2 years.

u-6-1-24(C) W PP
Development of the least damaging means of sterilization of egg products by electron irradiation.
Covers contract A-1s-33813. Approved 5/14/53 for 4 years.

u-6-1-25 W PP
Fundamental characterization of damages to egg products caused by spray drying.
Approved 8/4/53 for 2 years.

u-6-1-26 W PP
Investigation of the quality losses in poultry stored at various temperatures and under temperature fluctuations that occur under commercial and military conditions of handling and storage.
Approved 8/4/53 for 2 years.

u-6-1-27 W PP
Characterization of the principal oxidative changes that occur in egg lipids in order to provide a basis for further stabilizing and thereby increasing the utilization of egg solids in both edible and inedible outlets.
Approved 12/11/53 for 2 years.

u-6-2 - Milk Products Utilization Investigations.

u-6-2-6 E P
Recovery and purification of the proteins of milk whey.
Approved 11/20/44; extended 10/27/48 to 11/52. Revision is pending.

u-6-2-9 (Rev.) E P
Determination of basic physical properties such as hydration, molecular size and shape of native and denatured proteins of milk for the development of improved protein fibers and other essential protein products.
Approved 12/24/53 for 2 years.

u-6-2-10 (Rev.) E P
Laboratory investigation of the biological oxidation of dairy waste by aerobic fermentation to provide guides for the establishment of a practical process for its disposal, a problem the solution of which is essential to the dairy industry.
Approved 7/10/53 for 2 years.

u-6-2-12(C) E P
Pilot-plant evaluation of laboratory-developed aeration processes for the biological oxidation of dairy waste to determine practicality of such processes for its disposal, a problem the solution of which is essential to the dairy industry.
Covers contract A-ls-33457. Approved 9/26/51; extended 8/24/53 to 9/55.

u-6-2-13 DC ARD
Determination of the effect of synthetic detergent compounds on allergenic proteins, in order to improve methods of biological tests for allergens in antigens.
Approved 9/11/53 for 2 years.

u-6-2-14(C) E P
Field study of the pollution effects of dairy wastes and their abatement by laboratory-developed aeration process, to determine the practical feasibility of the simplified process on an industrial scale in an operating dairy plant.
Covers contract A-ls-33729. Approved 1/12/53 for 3 years.

u-6-2-15 E P
Development of new outlets for milk through basic studies on the composition and nature of milk proteins: Separation and characterization of the primary products formed from beta-casein by the action of trypsin.
Approved 9/29/53 for 2 years.

u-6-2-16 E P
Development of new outlets for milk through basic studies on the composition and nature of milk proteins: Investigation of the nature of the phosphorus linkage in alpha- and beta-casein.
Approved 9/29/53 for 2 years.

u-6-3 - Animal Fats and Oils and Special Products Utilization Investigations.

u-6-3-1 (Rev.) E P
Preparation of purified cholinesterase (concerned with nerve conduction and the action of nerve war gases) from animal tissues for use by the Army Chemical Corps.
Approved 8/24/53 for 2 years.

u-6-3-3 (Rev.) E AP
Evaluation of compounds derived from animal fats as plastics, plasticizers, adhesives, and coatings for essential military and civilian use by determination of physical properties such as tensile strength, modulus, elongation, brittle point, resistance to various factors, viscosity and solubilities, and molecular weights.
Approved 12/5/52 for 2 years.

u-6-3-4 (Rev.) E ED
Pilot-plant scale studies on the fractionation of animal fats for the production of special purpose liquid lubricants and industrial oils.
Approved 10/7/52 for 2 years.

u-6-3-5 (Rev.) E AF
Catalytic oxidation of animal fats to peroxides and hydroxy-, keto-, and epoxy- acids for use in the preparation of lubricating greases for military and essential civilian use, as polymerization catalysts in synthetic rubber manufacture, and as intermediates in oxidative cleavage processes.
Approved 8/19/52 for 2 years.

u-6-3-6 (Rev.) E AF
Preparation of polymers from long-chain acids and alcohols from animal fats for use as water-repellent agents for fabrics for military purposes.
Approved 4/6/53 for 2 years.

u-6-3-7 (Rev.) E AF
Preparation of substituted amides from animal fats for such applications as waterproofing agents and high-melting waxes.
Approved 12/5/52 for 2 years.

u-6-3-9 (Rev.) E AF
Investigation of fatty acids and alcohols derived from tallow as replacements for imported coconut oil in synthetic detergents for civilian and military needs.
Approved 12/5/52 for 2 years.

u-6-3-12 (Rev.) E AF
Development of improved shortenings for military and civilian use from lard and other meat fats as the principal raw material by means of hydrogenation and use of additives: Development of laboratory apparatus and methods suitable for chilling and plasticizing shortening.
Approved 6/2/53 for 2 years.

u-6-3-13 (Rev. 2) E AF
Utilization of the constituents of wool grease: Development of methods of isolating and characterizing the non-steroid constituents of the non-acidic fraction obtained by saponification of wool wax.
Approved 8/4/53 for 2 years.

u-6-3-14 (Rev. 2) E AF
Utilization of the constituents of wool grease: Development of methods for isolating and characterizing the hydroxy fatty acids present in the acidic fraction obtained by saponification of wool wax.
Approved 8/4/53 for 2 years.

u-6-3-16 (Rev.) E AF
Investigation of the chemical oxidative cleavage of animal fats to dibasic acids essential for the production of such important military items as high quality synthetic lubricants, plasticizers, and high tenacity nylon.
Approved 12/3/52 for 2 years.

u-6-3-18 (Rev.) E AF
Improvement of the physical properties of lard and other meat fats to make them more satisfactory for the preparation of baked products and various rations of the Armed Services: Study of the glyceride distribution in meat fats as an important factor governing physical characteristics.
Approved 6/2/53 for 2 years.

u-6-3-23(C) E AF
Investigations of the vacuum, non-destructive distillation of animal fatty acids and esters as a means for development of products suitable for the replacement of imported oils such as palm oil and castor oil.
Covers contract A-1s-33025. Approved 1/26/51; extended 8/24/53 to 6/30/54.

u-6-3-24(C) E AF
Determination of the solubilities of acids, esters, and alcohols derived from animal fats to obtain information necessary for the replacement of imported oils such as palm oil and castor oil.
Covers contract A-1s-33451. Approved 1/24/51; extended 8/24/53 to 6/30/55.

u-6-3-25(C) E AF
Preparation of polymerizable monomers from animal fats for use in manufacturing water-repellent agents for military textiles and as internal plasticizers for the numerous plastic items required by the Quartermaster Corps.
Covers contract A-1s-33434. Approved 5/31/51 for 2½ years. Discontinuance is awaiting contractor's final report.

u-6-3-26(C) E AF
Determination of dielectric constants and dipole moments of organic peroxides in order to clarify their structure as an aid in the development of useful products such as dibasic acids from them.
Covers contract A-1s-33725. Approved 2/3/53 for 3 years.

u-6-3-27 E AF
Development of improved shortenings for military and civilian uses from animal fats: Investigation of the chemical nature of unsaponifiable and other minor constituents of lard and tallow.
Approved 7/6/53 for 2 years.

u-6-4 - Hides, Skins, and Leather Utilization Investigations.

u-6-4-1 E H Renumbering of u-5-4-3 (Rev.)
Improved control of the quality of cured hides and skins to provide better raw materials for the production of leather for military and civilian use: Isolation of the numerous types of bacteria capable of causing spoilage, and development of treatments to prevent their growth.
Approved 10/6/52 for 2 years.

u-6-4-2 E H Renumbering of u-5-4-9 (Rev.)
Development of more serviceable insole leathers to increase the durability of military and civilian shoes, by adapting to commercial tannery practice, the laboratory-developed method for retannage of vegetable-tanned insole leather, using a non-critical aluminum salt.
Approved 12/14/52; extended 6/29/53 to 1/1/54.

u-6-4-3 E P Renumbering of u-5-4-11 (Rev.)
Improvement of the serviceability of leather, a critical military and essential civilian product, through exploratory studies on the mechanism of tanning action in the leather making process.
Approved 10/2/52 for 2 years.

u-6-4-4 E P Revision of part of u-5-4-3
Improvement of the serviceability of leather, a critical military and essential civilian product, through exploratory and pioneering studies on the chemical and physical character of collagen, a component of hides and skins.
Approved 8/4/53 for 2 years.

u-6-4-5 E H
The use of mucolytic enzymes as unhairing agents for hides and skins to decrease the time and cost of producing leather by adapting the unhairing operation to use by packers, thus decreasing shipping costs of hides and skins and eliminating the problem of disposing of spent lime liquors.
Approved 12/10/53 for 2 years.

u-6-4-6 E H
Chemical modification of hide proteins to produce new products or improved leathers for the more profitable utilization of domestic hides.
Approved 12/10/53 for 3 years.

u-7 - AGRICULTURAL RESIDUES UTILIZATION INVESTIGATIONS.

u-7-1 - Agricultural Residues.

u-7-1-1 N AR
Pilot-plant development of a wet separation process for dividing sugarcane bagasse into fiber to conserve pulpwood supply and into pith to improve marketability of molasses for feed.
Approved 10/1/52 for 2 years.

u-7-1-2 N AR
Preparation of sugarcane pith, with particular reference to its use as an absorbent for blackstrap molasses, vitamins, and minerals to make improved feeds.
Approved 12/14/52 for 2 years.

/and u-7-1-4
u-7-1-6 (Rev.) N AR Revision of u-7-1-6 and parts of u-7-1-3
Development of the mechano-chemical pulping process for improved corrugating board from sugarcane bagasse and straw for containers to meet military requirements.
Approved 12/16/52 for 2 years.

u-7-1-9 (Rev.) N AR
Investigation of ground seed hulls, fruit pits, nut shells, and corncobs for use in the tumbling-barrel finishing of military materiel.
Approved 4/6/53 for 2 years.

/and u-7-1-5
u-7-1-13 N AR Revision of parts of u-7-1-3, u-7-1-4,
Development of the mechano-chemical pulping process for liner board from sugarcane bagasse and straw to extend kraft pulp in liner and container board manufacture.
Approved 12/16/52 for 2 years.

/and u-7-1-5
u-7-1-14 N AR Revision of parts of u-7-1-3, u-7-1-4,
Development of the mechano-chemical pulping process for bleached sugarcane bagasse or straw pulps to replace chemical wood pulps as blends with groundwood in newsprint manufacture.
Approved 12/16/52 for 2 years.

/and u-7-1-5
u-7-1-15 N AR Revision of parts of u-7-1-3, u-7-1-4,
Development of the mechano-chemical pulping process for bleached sugarcane bagasse or straw pulp for blending with other pulps to make improved printing papers and conserve pulpwood.
Approved 12/16/52 for 2 years.

u-7-1-16(C) N AR
Semicommercial-scale manufacture of bleached specialty papers from wheat straw and bagasse pulps produced by the mechano-chemical process.
Covers contract A-1s-33805. Approved 3/27/53 for 1 year.

u-7-1-18 N AR
Investigation of the suitability of sugarcane bagasse for producing high alpha-cellulose pulps for the cellulose derivative industries.
Approved 5/5/53 for 2 years.

u-7-1-19 N AR
Development of soil-conditioning materials by the chemical modification of straw, corncobs, and other agricultural residues.
Approved 6/29/53 for 2 years.

u-7-1-20(C) N AR
The comprehensive evaluation of six esters of hydroxy-compounds derived from furfural obtained from agricultural residues, as premium quality plasticizers for vinyl resins and as plasticizers and softeners for synthetic rubbers and other film-forming polymeric materials.
Approved 10/5/53 for 2 years. Covers contract A-1s- .

u-7-1-21 N AR
Utilization of ground corncobs as mulch in home gardens and parks.
Approved 12/10/53 for 2 years.

2. Pending U-System Projects

u-2-1-60(C) S CF
Treatment of cotton with inorganic materials to produce cotton textiles with improved light-stability, durability, and physical properties for military and civilian uses.

u-3-1-45 W FP
Development of dehydrocanned prunes (canned partially dried prunes) for military and essential civilian use: Determination of shelf-life under the range of conditions encountered in military use.

u-3-6-20 E ED
Pilot-plant scale studies on the development of improved potato granules by solvent dehydration.

u-4-1-31 S ED
Survey of existing methods of cleaning cottonseed at oil mills and exploratory investigation of their improvement to give higher quality linters.

u-4-1-39 S ED
Extension of the filtration-extraction process, already developed for cottonseed, to the production of oil and meal from minor oilseeds of the South.

u-5-1-32 S SP
Development and evaluation of a non-inverting, ion-exchange treatment for purification of sugarcane juice, to produce a raw sugar of good quality in high yields for direct consumption and a molasses of improved quality.

u-6-2-6 (Rev.) E P
Basic studies on the isolation of a protein (component C) from milk whey.

3. Approved Special-Fund Projects

g-2 - NATURAL RUBBER EXTRACTION AND PROCESSING INVESTIGATIONS.
Discontinuance is pending.

g-2-1 - Laboratory and Pilot Plant Investigations on the Development of New or Improved Methods for the Extraction and Processing of Natural Rubber, and Development of Possible By-products from Domestic Rubber-bearing Plants.
Discontinuance is pending.

g-8 (g-8-1) - RESEARCH ON STRATEGIC AND CRITICAL TANNING MATERIALS: DEVELOPMENT OF SEMIWORKS PLANT AND EXTRACTION PROCESS, AND PREPARATION OF CANAIGRE EXTRACTS SUITABLE FOR TANNING MILITARY AND CIVILIAN LEATHERS.

g-8-1-1 E ED
Evaluation on a semiworks scale of a process for the recovery from canaigre, of tannin required for the production of military and civilian leathers, and the production of sufficient tanning extract for large-scale evaluation.
Approved 9/23/53 for 2 years.

QMC-O-1 - Studies of the Physical, Chemical, and Morphological Properties of the Constituents of Bakery Products and Their Simple Mixtures with Water.
Discontinuance is pending.

QMC-O-2 - Development of Durably Flameproofed Cotton Textiles for Military Use.

QMC-O-2-2 (Rev.) S CF
Efficiency of flameproofing agents for military textiles in relation to formation of dehydration catalysts at elevated temperatures as predicted by thermodynamic calculations.
Approved 4/30/53 for 1 year.

QMC-O-2-3 S CF
The preparation of halogenated esters of phosphoric acid and their application in conjunction with water-soluble resin-formers to cotton textiles to confer flameproofness for military use.
Approved 4/30/53 for 1 year.

QMC-O-2-4 S CF
Flameproofing of military textiles by application of carbon halide adducts of triallyl phosphate to cotton cloth from aqueous emulsions.
Approved 4/30/53 for 1 year.

QMC-O-2-5 S CCP
Flameproofing of cotton by application of resins and compounds made by reacting tetrakis(hydroxymethyl)phosphonium chloride with amino compounds to provide fire-resistant military fabrics.
Approved 6/12/53 for 2 years.

QMC-O-3 - Preparation of Dehydration Handbook for the Quartermaster Corps.
Discontinued 2/18/53. Reactivation is going forward.

QMC-O-6 - Investigation of the Dehydration of Sweetpotatoes for the Quartermaster Corps.

QMC-O-6-1 S FV
Improving the quality of dehydrated sweetpotatoes for military use by relating the changes in chemical and biochemical properties of the raw material during storage and preparation for dehydration with the palatability and nutritive value of the product.
Approved 12/5/52 for 2 years.

QMC-O-6-2 W VP
Development of dehydrated sweetpotatoes for military use: Effects of processing and packaging procedures on quality and storage stability.
Approved 4/6/53 for 2 years.

SG-O-1 - Development of Emulsifiable Oils and Fats for Use in Intravenous Alimentation, for the Office of the Surgeon General.

Symbols for Regional Laboratory Divisions, Field Stations, and Other Units

Southern Region

SRRL	Southern Regional Research Laboratory
OD	Office of Director
AP	Analytical, Physical-Chemical, and Physics Division
ED	Engineering and Development Division
CCP	Cotton Chemical Processing Division
CF	Cotton Fiber Division
CMP	Cotton Mechanical Processing Division
FV	Fruit and Vegetable Division
O	Oilseed Division
SP	Sugarcane Products Division
Bog	Tung Oil Laboratory, Bogalusa, La.
Hou	Sugarcane Products Laboratory, Houma, La.
Olu	Naval Stores Investigations, Olustee, Fla.
Ral	Food Fermentation Laboratory, Raleigh, N. C.
Wes	Fruit and Vegetable Products Laboratory, Weslaco, Tex.
Win	Citrus Products Laboratory, Winter Haven, Fla.

Western Region

WRRL	Western Regional Research Laboratory
OD	Office of Director
AP	Analytical, Physical-Chemical, and Physics Division
ED	Engineering and Development Division
FC	Field Crop Utilization Division
FP	Fruit Processing Division
Phar	Pharmacology Division
PP	Poultry Products Division
Pr	Protein Division
VP	Vegetable Processing Division
Pas	Fruit and Vegetable Products Investigations of Southern California and Arizona, Pasadena, Calif.
Pros	Fruit and Vegetable Products Investigations of the Pacific Northwest, Prosser, Wash.
Puy	Fruit and Vegetable Products Investigations of the Pacific Northwest, Puyallup, Wash.

Eastern Region

ERRL	Eastern Regional Research Laboratory
OD	Office of Director
AP	Analytical, Physical-Chemical, and Physics Division
ED	Engineering and Development Division
AF	Animal Fats Division
P	Animal Proteins Division
B	Biochemical Division
BACC	Biologically Active Chemical Compounds Division
FV	Fruit and Vegetable Division
H	Hides, Tanning Materials, and Leather Division

Northern Region

NRRL	Northern Regional Research Laboratory
OD	Office of Director
AP	Analytical, Physical-Chemical, and Physics Division
ED	Engineering and Development Division
AR	Agricultural Residues Division
F	Fermentation Division
MFE	Motor Fuels Evaluation Division
OP	Oil and Protein Division
SD	Starch and Dextrose Division

Washington Area

ARD	Allergen Research Division